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Biotechnology Notes

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Biotechnology Notes, a compilation of agency activities, news events, and upcoming meetings, is prepared for members of the U.S. Department of Agriculture's (USDA) Committee on Biotechnology in Agriculture (CBA) by USDA's Office of Agricultural Biotechnology (OAB).

INSIDE USDA

TRANSGENIC ANIMALS; PUBLIC EDUCATION FOCUS OF ABRAC MEETING

At the request of USDA's Food Safety and Inspection Service (FSIS), the Department's Agricultural Biotechnology Research Advisory Committee (ABRAC) formed a Transgenic Animal Working Group to develop recommendations on a scientific approach to assess the human food safety of transgenic animals. The working group presented its recommendations to the full ABRAC, June 29-30, in Research Triangle Park, NC. The meeting was open to the public.

The 12 ABRAC members who attended that meeting agreed to the approach taken by the working group but with some refinements. That approach is to first determine if an animal is transgenic and then determine the gene product's concentration and distribution in the edible tissues of the animal. The committee's draft recommendation also calls for tests to detect any secondary or unwanted side effects which may result from the genetic modification.

ABRAC's chairman will now present these recommendations to the Assistant Secretary for Science and Education for transmittal to FSIS. The agency will consider ABRAC's advice as it begins to formulate its policy regarding transgenic animals. Minutes of the meeting along with the transgenic animal food safety recommendations will be made available to the public as soon as possible.

The ABRAC also discussed the social issues raised at a workshop it attended on June 28-29 called "Symbol, Science and Substance: The Societal Issues of Food Biotechnology." The Committee said there appears to be a need among certain societal groups, such as chefs, for basic information about food biotechnology. ABRAC also noted that USDA's Extension Service could be effective in helping to educate the public about biotechnology issues and products.

The ABRAC plans to meet again December 16-17 in Washington, DC, where it will discuss recommendations from a workshop on aquatic biotechnology that takes place

August 18-20 in Minneapolis, MN. For more information, please call USDA's Office of Agricultural Biotechnology (OAB) at 703-235-4419.

WIDE-RANGING VIEWS AIRED AT FOOD BIOTECHNOLOGY CONFERENCE

Public policy issues concerning food biotechnology was the theme at this year's ISIS (Institute for Science in Society) conference, June 10-11, in Washington, DC. Newly confirmed USDA Assistant Secretary for Marketing and Inspection Services, Eugene Branstool, said in his keynote address, "The tools of biotechnology--used in tandem with safely applied pesticides and naturally occurring biological control methods . . . will ultimately allow us to steward agriculture and the environment in a more sustainable, environmentally sound way."

Senator Patrick Leahy emphasized the importance of learning about any risks associated with biotechnology. "If we don't understand and manage legitimate risks, we stand to lose public support for biotechnology altogether." He also said biotechnology "is destined to be one of the great growth areas of the future. . . with the potential to help end world hunger, help clean up the environment, produce safer and more nutritious foods, and help open new markets for agricultural products."

Michael Fox of the Humane Society of the United States said genetic engineering in agriculture should be "socially just" and can only be acceptable as long as there is no increased risk or cost to farmers, rural communities, wildlife and the environment, farm animals, and consumers.

BIOTECH BEAMED TO BROADCASTERS

Two TV news features about agricultural biotechnology were recently sent by satellite across the country to be downlinked by news programs and farm broadcasters. The first discusses a genetically engineered tomato developed by Calgene Inc., Davis, CA, and the second piece looks at agricultural biotechnology in general. Each runs about 2-1/2 minutes. The features were produced by the TV division in USDA's Office of Public Affairs.

NEWS AROUND THE NATION (AND THE WORLD)

LOSING THE WIL(T) TO LIVE: FIGHTING FUNGAL DISEASE WITH BIOTECH

Potato growers in Washington State spend about \$23 million a year fumigating their fields against the fungus called *Verticillium* wilt and other plant pests because they know that

left to its own devices the *Verticillium* wilt would wipe out the potato crop. This common soil fungus wreaks havoc by clogging up the potato's vascular system. The potato is then unable to take in any water and quickly wilts. Now, however, a Washington State University scientist has discovered through biotechnology what amounts to a temporary reprieve for the ill-fated potato.

Using *Agrobacterium tumefaciens* as a vector, plant pathologist Lee Hadwiger inserted a gene from split peas -- which tolerate the fungal disease -- into potatoes. The new gene adds two weeks to the life of the potato and recent field tests show yields are double those of unmodified potatoes.

So far Hadwiger has only field tested one kind of potato, the Shepody, which is the one used to make French fries, but he says he plans to use other varieties as the research moves along.

This project was supported by the Washington Potato Commission and the Washington Sea Grant Program. To learn more about it, please call Hadwiger at 509-335-3751.

BIOTECH VIA SATELLITE

A biotechnology education workshop focusing on food will be carried throughout the United States via satellite October 20, 27, and November 3. It is sponsored by the University of Wisconsin Biotechnology Center, the Wisconsin Educational Communications Board and the Satellite Educational Resources Consortium. The intended viewing audience is middle and high school teachers and 4-H leaders. For information about fees and how to downlink the broadcast, please call 1-800-476-5001.

COUNCIL DISCUSSES BIOTECH ISSUES FACING THE FEDERAL GOVERNMENT

The Committee on Biotechnology of the National Research Council met June 21 in Washington, DC to discuss "Biotechnology Issues Facing the Federal Government Today and Tomorrow." Representing USDA, Alvin Young said there is a need for the Federal sector to develop standards for assuring global access to plant and animal genome databases. He also suggested evaluating the effects of biotechnology advances on grading standards for fruits, vegetables, and animal products.

Other speakers noted additional issues the Federal Government needs to address. These included the need for a database to catalogue rare germplasm collected from around the world, the need for more debate over labeling bioengineered foods, allergenicity of biotechnology foods, monitoring requirements for environmental releases of microorganisms, gaps in bioremediation research, gene therapy, and the need to foster more interdisciplinary research.

NEED MORE DATA, SAYS AQUACULTURE GROUP

Little knowledge now exists for predicting how aquatic organisms developed through modern biotechnology will affect the environment, concluded 80 scientists attending a workshop on aquaculture in Trondheim, Norway, June 9-11. Therefore, they recommended that the scientific community begin studies on diverse species in different ecosystems. They said useful insight may be gained from studying gene flow using natural (unmodified) organisms, genetic markers, and experience from previous releases of exotic species.

An approach to ecological risk assessment for genetically modified finfish and shellfish was presented by Anne Kapuscinski of the University of Minnesota. She highlighted the many factors that need to be considered before releasing organisms with novel traits.

The workshop on "Environmental Impacts of Aquaculture Using Aquatic Organisms Derived Through Modern Biotechnology" was sponsored by the Organization of Economic Cooperation and Development.

IT'S ALL IN THE MESSAGE

Murray McLaughlin writes in the May/June issue of *The AgBiotech Bulletin* that the public would be well served if biotechnology communicators would focus on relaying just two messages to the public. The first is that the tools of ag biotechnology have been used throughout the ages with very beneficial results. The new tools and methods "simply provide more development of options with more accurately targeted results." The second message is that although profits are expected eventually from the commercialization of new biotech products, the real impetus for scientific development is to improve the quality of life.

CANADIAN FARMERS OPTIMISTIC ABOUT BIOTECH

A survey of more than 550 farmers in three Canadian provinces indicates strong support for ag biotechnology. Livestock producers ranked genetic improvements as the most significant benefit to come from biotechnology, followed by improved vaccines, improved disease tolerance, and better nutrition.

Crop producers said new and improved varieties were the most important benefits followed by the development of bioherbicides, transgenic plants, and biofertilizers. Durum wheat growers are optimistic about the new bioherbicides, while canola producers say they are looking forward to transgenic plants.

The survey also showed that farmers who earned more and had more education were more likely to endorse biotechnology. Canadian farmers said they prefer to get their ag biotech news from provincial departments of agriculture and farm publications. Government researchers and farm organizations ranked second, biotech companies and the general media ranked third, and coming in fourth were consumer organizations, environmental organizations, and non-ag related government agencies. For more details about the survey, call Murray McLaughlin in Saskatoon, Saskatchewan at 306-975-1939; Fax: 306-975-1966.

COMMERCIALIZING BIOTECH IN DEVELOPING COUNTRIES

Proceedings are now available from a meeting held in Kuala Lumpur, Malaysia on commercializing biotechnology in a developing economy. Participants emphasized that developing countries need to carefully examine any constraints to biotech commercialization, such as a lack of infrastructure and trained personnel. To receive a copy of the proceedings, write to the editor, A. H. Zakri, Deputy Vice Chancellor, University Kebangsaan Malaysia, 43600 Ukm Bangi, Selangor Darul Ehsan, Malaysia.

JAPAN SET TO FIELD TEST GENETICALLY MODIFIED CROPS

Small-scale field tests of genetically engineered rice, melons, and petunias will soon begin in Tsukuba, Japan. This will bring the total number of field tests of genetically modified crops conducted in Japan to five. More are expected in the future now that the Ministry of Agriculture, Fisheries, and Forestry has published guidance for companies for physical confinement.

IN CASE YOU WEREN'T THERE

■ Science should move slowly; don't trust anyone who represents a profit-making enterprise; be wary of hidden political agendas: these were the views expressed by Margaret Visser, a Canadian professor and author, at a conference called "Symbol, Substance, and Science: The Societal Issues of Food Biotechnology," June 28-29, in Research Triangle Park, NC. The meeting was sponsored by the North Carolina Biotechnology Center and USDA's OAB. Other presenters included Roger Straughan, professor of ethics at the University of Reading in Great Britain, who said there is no such thing as "risk free" and advised that one does not play it safe by doing nothing.

Nearly 100 people attended the conference, which viewed food and biotechnology from moral, religious, ethical, consumer, and scientific points of view. Eric Flamm, Office of the Deputy Commissioner for Policy, Food and Drug Administration (FDA), said random

placement of DNA is less likely to occur using genetic engineering than it would in crops bred through traditional agronomic practices.

Frits van Vugt of the Netherlands Ministry of Agriculture said the introduction of transgenic animals in the food supply in The Netherlands is now remote because of negative public perceptions. He said his government has an obligation to stimulate more discussion of the ethical issues. Keith Keogh, executive chef at the EPCOT Center in Florida, suggested labeling all bio-engineered foods as a first step in order to gain the public's trust.

NEW PUBLICATIONS

■ *Protein Folding: In Vivo and In Vitro*. Edited by J. L. Cleland. Published April 1993 by the American Chemical Society. Washington, DC. To order call 1-800-ACS-5558.

■ *Food Flavor and Safety: Molecular Analysis and Design*. Edited by A. M. Spanier, H. Okai, and M. Tamura. Published May 1993 by the American Chemical Society. To order call 1-800-ACS-5558.

■ *Chromatography in Biotechnology*. Edited by C. Horvath and L. S. Ettre. Published May 1993 by the American Chemical Society. To order call 1-800-ACS-5558.

UPCOMING MEETINGS

July 21-24: "Crucifer Genetic Workshop." Saskatoon, Saskatchewan, Canada. Sponsored by Canada's National Research Council. For more information, please call Rosemarie Galloys in Saskatoon at 306-975-5571.

July 25-30: "Third International Symposium on the Molecular Biology of the Potato." Santa Cruz, CA. Sponsored by USDA, Monsanto Inc., Frito Lay Inc., J.R. Simplot Inc., and Rhone-Poulenc. For more information, please write to William Belknap, USDA-ARS, 800 Buchanan St., Albany, CA 94710.

Aug. 17-20: Plant Biotechnology Methods. This workshop introduces the principles, techniques, and applications of plant biotechnology. Sponsored by Penn State University. University Park, PA. For more details call either 1-800-833-5533 or 814-863-3650.

Aug. 18-20: Workshop on Performance Standards for Research with Genetically Modified Fish and Shellfish. Duluth, MN. Sponsored by the Minnesota Department of Fisheries and Wildlife, the University of Minnesota, Minnesota Sea Grant, the Minnesota Legislature, and USDA. For details call USDA/OAB at 703-235-4419.

Aug. 30-Sept. 2: First Biomass Conference of the Americas: Energy, Environment, Agriculture, and Industry. Burlington, VT. Sponsored by USDA; the Department of Energy; the Environmental Protection Agency; and Energy, Mines and Resources of Canada. For details call 303-231-1158 or 1040; or send a fax to: 303-231-7719.

Sept. 13-17: Fungal Biotechnology. Ross Priory, Loch Lomond, Scotland. Sponsored by the University of Strathclyde. For details about this course, write to Ms. E. Clements, Fermentation Centre, Department of Bioscience and Biotechnology, University of Strathclyde, 204 George St., Glasgow G1 1XW, UK.

Sept. 13-17: Issues in Agricultural Bioethics. University of Nottingham, Sutton Bonington Campus, UK. For details about this conference, call Ben Mephram at 06-02-516303; Fax: 06-02-51602.

Sept. 14: International Biotechnology. A lecture sponsored by the Biotechnology Industry Organization. Washington, DC. Call Richard Okiuye at 202-857-0244; Fax: 202-857-0237 for details.

Oct. 12: Biotechnology Lobbying. A lecture sponsored by the Biotechnology Industry Organization. Call Richard Okiuye at 202-857-0244; Fax: 202-857-0237 for details.

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